

## Graves' Disease in Non-Identical Twins

JOSEPH A. VOLPE, MAJOR, MC, USA, *San Francisco*; EUGENE T. MORITA, MAJOR, MC, USA, *Denver*, AND GERALD S. JOHNSTON, LTC, MC, USA, *San Francisco*

THERE HAVE BEEN several reports of Graves' disease (diffuse toxic goiter) in identical twins.<sup>1-8</sup> The following report of its occurrence in a set of non-identical twins of opposite sex appears unique in the literature.

*Case 1:* Beginning in January 1969, the patient, a 22-year-old white man, had gradual onset of weight loss, excessive appetite, weakness, palpitation, sweating, diarrhea, and prominence of the eyes. In August 1969, his pulse rate was 100 per minute. There was a prominent stare, tremor, warm moist skin and brisk reflexes. The thyroid gland was diffusely enlarged, and a bruit could be heard. The I<sup>131</sup> uptake was 49 percent (normal 15 to 45 percent), serum T<sub>4</sub> 11.8 micrograms per 100 ml (normal 3 to 6.5 micrograms) and the T<sub>3</sub> resin uptake 43 percent (normal 29 ± 5 percent). The patient improved with propylthiouracil therapy.

*Case 2:* The patient, a twin sister of the patient in Case 1, suffered anoxia and brain injury at birth and now spends nine months a year in an institution for retarded persons. In May 1969 she became extremely nervous and irritable and had a 20-pound loss in weight. The pulse rate was 140 per minute and the blood pressure 180/70 mm of

mercury. The thyroid gland was diffusely enlarged. Protein-bound iodine was 12.2 micrograms per 100 ml and the T<sub>3</sub> uptake was 43 percent.\* She responded to propylthiouracil.

### Discussion

It has been recognized that hereditary predisposition to the development of Graves' disease exists and it is postulated that the gene is transmitted as a multifactorial genetic inheritance.<sup>9-15</sup> The familial incidence of Graves' disease has been as high as 60 percent in some series.<sup>9-11</sup> Martin and Fisher found a higher incidence among siblings than among parents in the families of 90 probands with Graves' disease—16 of 160 siblings as against 1 of 180 parents.<sup>10</sup> The simultaneous occurrence (concordance) of Graves' disease in both members of non-identical twins has been reported rarely. In an extensive survey of Danish twins,<sup>4</sup> 58 sets were found in which at least one member of the pair had Graves' disease (thyrotoxicosis and goiter). Twenty-one were identical twins and 37 were non-identical. The incidence of concordance among the identical twins was 76 percent (16 of 21). Only 10 percent of the non-identical twins were concordant for Graves' disease (4 of 37). It is interesting that the four non-identical twins concordant for the disease were of the same sex.

\*Performed at another institution. Normals unknown.

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From the Nuclear Medicine Service, Letterman General Hospital, San Francisco.

Reprint requests to: Box 14, Letterman General Hospital, San Francisco, Ca. 94129 (Major Volpe).